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TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLE:—Doing Too Much . . . 231
Pinus muricata. (With figure.) . . . 232
Private Forestry and State Forestry.—I. *C. A. Schenck.* 232
The California Orchards . . . *Charles H. Shinn.* 233
FOREIGN CORRESPONDENCE:—London Letter . . . *W. Watson.* 234
CULTURAL DEPARTMENT:—The Asparagus Rust Again, *Professor Byron D. Halsted.* 236
Climbing Plants for the Greenhouse . . . *W. H. Taplin.* 236
Hardy Rhododendrons . . . *T. D. Hatfield.* 237
The Cultivation of Dionæa . . . *G. W. Oliver.* 237
June Irises . . . *J. N. Gerard.* 238
Asparagus Sprengeri . . . *E. O. Orpet.* 238
Ranunculus Ficaria . . . *John Chamberlin.* 238
CORRESPONDENCE:—A Garden of Roses . . . *Danske Dandridge.* 238
Edible Wild Plants . . . *John Chamberlin.* 238
RECENT PUBLICATIONS . . . 239
NOTES . . . 240
ILLUSTRATION:—Pinus muricata on the coast of California, Fig. 30 . . . 235

Doing Too Much.

MORE than once in these pages attention has been drawn to one of the chief mistakes of those who own or design country places in America. This is the mistake of doing too much. The art of gardening design, whether practiced upon a large or a small scale, is based upon nature in a very literal sense. The painter and the sculptor must base their art upon nature in so far that they must aim to reproduce her effects. But the artist in landscape is under closer obligations than this. He cannot choose a blank canvas and reproduce any natural effect that he happens to desire. Usually the outlines and main features of his picture are already indicated by nature. And even if he finds a piece of ground which is wholly devoid of irregularities in surface and of native vegetation, the proper method of treating it is suggested by its surroundings and outlook, by the character of the exposure, the climate and the soil, and by that of the vegetation to which these have given birth upon neighboring areas.

Of course, such a case as this is more uninteresting, more discouraging than any other. Diversities of level and natural growths of trees, shrubs and flowers are highly prized by the landscape artist. They make his task more grateful, not merely because they furnish features which could not be artificially produced at once, but also because they indicate the special as well as the general character of the effect which will be appropriate upon the given site. The true artist carefully preserves nature's preliminary provisions when he begins his work, accepts them as the nucleus of his design, and adds nothing which is inharmonious and nothing which is in excess of the actual artistic requirements of the case. On the other hand, the inartistic gardener or owner does not accept nature's scheme and loyally adhere to it. He fails to see that it is a scheme—a true design, if only, perhaps, in outline and suggestion. He confuses her intentions and spoils her suggested result by disregarding the characteristics of the site in placing his buildings and paths, by adding plants which do not harmonize with the indigenous vegetation, and, in nine cases out of ten, by using far too many of them and thus creating a disorderly medley instead of a rational composition.

This is what is usually meant when one speaks of "doing too much" in the treatment of a country place. But something even worse than this is done in certain instances by the owners of American country sites—something which cannot be seen or read about without exciting the utmost surprise in the mind of any one who believes that our fellow-countrymen are possessed of the common sense which may not mean real artistic aptitude, but is absolutely essential as its basis. In certain instances nature's handiwork is altogether swept away before the gardener is asked to begin his work. This is doing too much, indeed. Of course, even on the site most beautifully furnished by nature, the artist is privileged to eliminate, no less than to add, as art may dictate. But to eliminate everything in advance of his advent is an act of vandalism and of purest folly. It is to spoil nature, and at the same time to deprive art of its chance to create beauty of any individual or effective kind.

Every one knows, for example, that the surroundings of the city of Chicago are for the most part flat and featureless, that the soil is poor and the vegetation scant and scrubby. And every one should know that it must be difficult in such localities to create country places, villa sites, or those villages of houses each surrounded by its own small grounds, which are characteristic of the suburbs of our great western towns. For some miles to the northward of Chicago the suburbs are, indeed, of a flat and monotonous character most discouraging to the artist. Even here, however, beauty of an orderly, quiet, modest kind can be secured, as is shown by the streets near the borders of Graceland Cemetery. And those who know what the site of the newer part of this cemetery was less than twenty years ago, and who have seen that it is to-day one of the most attractive rural burial grounds in America, understand the radical transformations which can be produced by an artist as intelligent and skillful as its creator, Mr. Simonds.

Nevertheless, it might be supposed that, in such a region as this, all places to which nature has actually given a degree of individuality and charm would be highly valued, and their peculiarities sedulously preserved. Such is not the case. As one drives, for example, along the lake shore between the villages near Graceland and the more distant one called Winnetka, the surface becomes more diversified and the vegetation increases in size and variety until, at Winnetka, a cross-range of hills ends on the shore in a rolling expanse of country forming bluffs from thirty to fifty feet in height at certain points. Larger trees than one finds elsewhere now abound, chiefly Cottonwoods and Oaks; narrow but steep and rugged ravines are interspersed with tracts of forest of much charm and picturesqueness; and in the more open parts thickets and clumps of beautiful shrubs cover the soil, Thorns, Crab-apples, Sumachs and Willows preponderating.

On the edge of the highest of these ridges, with a beautiful outlook over the lake, stands a house the grounds of which have been carefully treated by Mr. Simonds. He has done enough to make them fitting accompaniments for a human habitation of some dignity, yet not too much either in the way of addition or of elimination. The site for the house was chosen with his assistance, and, therefore, its foundation fits the irregularities of the spot; and the trees and shrubs which nature had planted grow up around its walls in as friendly and harmonious a manner as though man had set them out after the walls were built. The sloping ground over which one looks toward the lake still bears its natural crop of Sumachs, Thorns and Crab-apples, beautiful at all seasons, and enchanting when they are loaded with blossoms, while the turf about them has been improved. And on the entrance side of the house the approach winds under Oak-trees which long have held their station, and amid groups of native shrubs increased in number, but not altered in general character and effect by harmonious plantings. This house was built less than two years ago, but it has been so well adapted to the natural

character of its site that it looks as thoroughly at home as though it had stood for thirty years; and the peculiar charm of its surroundings springs from their peculiarly local character. Nowhere else but just here on the shore of Lake Michigan could they wear the aspect they wear to-day; and only a very ignorant eye would be willing to change their individual beauty for that of a more gardenesque or more conventional kind.

Another instance of the intelligent treatment of a peculiar site is found near Graceland, in the Saddle and Cycle Clubhouse and its grounds. The low sandy bluffs overhanging the beach have not been leveled or changed for the support of this house. It stretches itself picturesquely along the verge of two of them, the little break between being spanned by a graceful arch, which carries a connecting piazza. A natural grove of Oaks comfortably overshadows its roofs, and the native vegetation has not been disturbed by uprootings or by the addition of inharmonious plants. This house also looks as though it had grown where it stands, and its effect is both beautiful and individual, because nature's scheme has been understood and respected. But not far away runs a straight road bordered on both sides by villas, one row of them immediately facing the lake. Here we see very clearly the effects of the evil art of doing too much. The process by which many of the little places have been given an empty, conventional, unindividual, unattractive aspect is revealed by the many lots upon which no houses yet stand. Those which have not yet been "improved" are diversified in surface—not boldly, but to a degree which would afford an intelligent artist a chance to individualize each lot by the placing of the house and its paths and outbuildings. They are covered with picturesque groves of trees, wind-blown and rugged, yet for this very reason harmonizing admirably with the outlook over the beach and the wind-swept lake. And they are furthermore adorned by rich undergrowths of large shrubs and luxuriant vines. Adjacent lots, however, show the process of "improvement" which will rapidly sweep all these features away. The lots which are called ready for purchaser and builder have been carefully reduced to an absolute level; all the trees, except, perhaps, one or two of the largest, have been removed, and every trace of shrubs, flowers and natural turf has been wiped away. These lots resemble huge garden-beds prepared for the work of "bedding out." They are utterly ruined as characteristic sites in a locality to which nature had given a peculiar sort of beauty; and, swept by the cold breath of Lake Michigan, they are unfit for the production of conventional gardenesque effects. The only thing that an artist could wish to do with them would be to restore such irregularities of surface as they once displayed and to reproduce the sort of vegetation with which they once were clothed. This, of course, would be a difficult, if not an impossible, process, and would demand many years for its fulfillment. Practically, the sites are destroyed for all artistic purposes.

There are many places in this section where similar offenses against good taste are evident, and many persons who are considered intelligent and cultivated seem to think that all trees are ugly and intrusive, and all shrubs and flowers offensive weeds, unless they are counted in the gardener's list of ornamental plants. If these ideas and their expression in practice were confined to one district it would be hardly worth while to criticise them. Unfortunately, however, in one or another form they are revealed to the traveler in almost every part of our land. Many planters have never learned that to produce artistic results upon nature's canvas one must follow her suggestions and use her local materials. The evil art of doing too much afflicts the mind and eye both in indiscreet additions to nature's work and indiscreet preparatory eliminations of this work.

There is harmony in planting as there is in music. Variety and even wildness may be admitted, but discord cannot be allowed.—*Planting and Rural Ornament.* 1796.

Pinus muricata.

FOUR species of the Pine-trees of the United States grow by the sea on the Pacific coast, maintaining a foothold in the most exposed situations and tossing their sturdy branches to the gale. The first of these, Pinus contorta, stretches along the coast from Alaska to Mendocino County, California. This is a small tree, rarely more than thirty feet high, and on the white clay barrens of Mendocino ripening miniature cones when only a few inches in height. This tree, however, is not confined to the immediate neighborhood of the coast, but spreads inland through Alaska, British Columbia, Washington and Oregon, and, assuming various forms, ultimately passes into the Lodge Pole Pine of both slopes of the Rocky Mountains and of the high California Sierras.

From a point just north of the southern limits of the range of Pinus contorta, the second of these maritime Pines, Pinus muricata, stretches southward along the California coast, leaving several gaps, however, as far south at least as San Luis Obispo County, and reappears on the coast of Lower California.

Pinus muricata is one of the Pines which produce their leaves in pairs and is a tree usually from twenty-five to fifty feet in height, although much larger individuals may sometimes be seen, especially toward the northern limits of its range, where it grows apparently much larger than farther south. This Pine has little value economically, as the wood is too resinous and coarse-grained for any use except as fuel, and as an ornamental tree in cultivation it has little to recommend it, although on the inland side of low hills back from Tomalis Point, north of San Francisco Bay, it becomes sometimes a handsome round-topped, symmetrical tree with a dense head of dark foliage. It is chiefly interesting from the remarkable thickness of the bark, which on comparatively small trunks is sometimes five or six inches thick, a peculiarity which is well shown in our illustration on page 235 of this issue, made from a photograph for which we are indebted to Mr. J. G. Lemmon, the enthusiastic and successful student of the conifers of western North America. It is also remarkable for the persistence of its ovate oblique cones, armed with short, stout, recurved prickles, which are produced in whorls and remain on the trunk and branches sometimes for thirty or forty years, often becoming imbedded in the bark.

The third of these trees, Pinus radiata, or, as it is more generally known, Pinus insignis, is more restricted in its distribution, being confined to the region immediately adjacent to the Bay of Monterey, where it forms a narrow forest a few miles long back of the grove of Monterey Cypresses on Point Pinos. It is this Pine that surrounds and shelters the hotel Del Monte at Monterey.

The fourth of these Pines, Pinus Torreyana, is found only on the border of the high bluff and on the sides of the ravines extending from it to the sea, north and south of Del Mar, in San Diego County, where it stretches along the coast for a distance of nearly eight miles, but nowhere penetrates inland more than a mile and a half. A single grove of this tree also grows on the east end of Santa Rosa Island, off the California coast.

Private Forestry and State Forestry.—I.

FOR years both Congress and the state legislatures throughout the country have anticipated the disastrous effects of the disappearance of the forests. But, unfortunately, as soon as the question, What is to be done? is raised, we find among the legislators as many opinions as there are members, because on account of lack of experience it is impossible to decide in advance what is the best scheme. Inaction on the ground of ignorance of the best method shows poor statesmanship. Von Moltke used to say, "To act unwisely is wiser than not to act at all," and this certainly holds good with forestry. Whatever the beginning in forestry may be—if there is only a decided

beginning all over the country—true forestry will develop and progress be made.

But what is true forestry? In Germany and France true forest management was formerly considered to be the making use of the forests without diminishing the growing stock, the quantity of wood and timber cut and removed from the various parts of the forest during a year or a period of years being kept equal to the increment over the entire forest area.*

Experience in this country as well as abroad has shown that private landowners are likely to slaughter their forests in order to gain quick returns with larger immediate profits. If the father does not act thus, his son or his grandson assuredly will. Few men are so rich as not to feel the need of ready money once in a while; and few are so constant in resolution as not to take capital out of one business in order to invest it in another, when there is a prospect of larger immediate profits. Now, it is easy enough to take capital out of a forest-clad area; but it is difficult to put it back—that is, to restore the forest growth. Rarely will a landowner enjoy so long a life as to be able to fell trees of his own planting. And even were it otherwise, few people care to invest money in a venture which will make no return for scores of years, accumulating interest in such a manner that dividends cannot be separated from the original capital—a venture which is constantly endangered by fire and lawlessness, and which constantly swallows up money in the shape of taxes. Thus, well-stocked forests owned by private individuals are sure to be cut over more rapidly than they are reproduced; and poorly stocked forests, or areas deprived of their forest covers, when owned by private individuals, will scarcely ever be improved or planted anew.

However, forests may continue to exist even in the hands of private individuals with proper laws. This is the case in Austria, Switzerland, France and Germany. In the last-named country about one-half of the forest area is owned by private individuals. A large number of the owners, however, are not allowed to dispose of their forests, the property being entailed. In these cases the family is, in fact, the owner of the forest estate, and one or more members of it, carefully watched by the eyes of the law and by the other members of the family, enjoy the benefit of using the products of the forest within the limits of its productiveness. They are not allowed to cut more than its normal growth—that is, its annual increment. It has happened repeatedly that a family has brought suit against the member in possession, charging him with overcutting the forests. History has taught that entailed forest property admits of a proper and even a conservative forest management.

Owners of woodland in the Old Country who are independent of their families, as a rule, own but small areas, on an average certainly not more than a hundred acres. On forest lands of this extent forest management to furnish annual returns is scarcely feasible, and here again human nature would lead to the ruin of the forest if not checked by strictly enforced laws. Of course, owners cannot be hindered from cutting their crops as soon as they deem them ripe for the axe; more than that, they are even allowed to remove the litter from the ground, thus exhausting gradually the productiveness of the land. But they are prevented from changing woodland into farm or pasture; they are compelled after a clear cutting to plant the area within a few years; they are obliged to share pro area in the payment of a forest guard, whose duty it is to protect the forest from theft, from fire and from damage by cattle, game and insects; and the laws of inheritance do not admit of the splitting up of woodlands into fragments smaller than, say, two acres. It goes without saying that all private owners of woodland have been and are opposed to such measures and laws. The revolution of 1848 in Baden was an outburst of this opposition. Even to-day no European legislature is without an organized opposition to the heavy burden of the forest laws. The great majority of the voters, however, realize the necessity for such measures—the necessity of restraining individuals or classes with a view to the protection and benefit of the people as a whole. In short, history has proved for Europe that private forests cannot be maintained in proper condition and productiveness unless they are either entailed or administered under strict legal restraint.

In this country the principle of individual freedom will long prevent the passing of laws similar to the forest laws of Europe. Entailed forest property is still an impossibility. Thus, we might be led to believe that the American forests are hopelessly lost to true forestry, but they are not. The definition of the term "true forest management" given above, as stated, was formerly the ruling one. Since 1870, however, a bold opposition has arisen which puts the financial or economic side of forestry to the front. The economic definition reads: "True forest management is that which yields the greatest money returns." In fact, since 1870, German and French foresters have become Americanized. They have more or less abandoned the vexation of leaving large amounts of capital, bearing a low interest, invested in the production of timber trees. Generally speaking, forests should be cut at the time when their annual increment (increase of value of stumpage) no longer affords an adequate interest on the capital which the stumpage represents. The truth of this principle of forestry is leading at the present moment to a considerable reduction of the growing stock of trees in Germany, Austria, Switzerland and France. Of course, this reduction cannot be carried through at once, for that would overstock the European market with lumber. However, the forester's aim is to have that amount of capital, and that amount only, invested in the forests which will yield the highest interest on the capital invested. If, for instance, a growing stock worth $200,000 allows of an annual net revenue of $6,000, while with the growing stock reduced to a value of $100,000 the yield would be $4,000 annually, the gradual reduction would be considered advisable. The entire matter is so plain and simple that one might be at a loss to understand why this main principle of forestry was scarcely discovered before 1870, and is not yet recognized by many European foresters. It would lead me too far to explain this fact at length.

There are some considerations, however, which diminish the influence of this principle on general practice. The financial principle neglects altogether the fact of the indirect utility of the forests in their influence upon temperature, water-supply, health, etc. Neither does it take into consideration the duty of the state to provide for the timber-supply and lumber industry of the next generation. In other words, it does not hold as good with state forestry as it does with private forestry. Furthermore, the financial principle is greatly influenced by circumstances which are hardly capable of economic expression. Such are fluctuations in the value of stumpage and lumber, possible legislation affecting the customs or dealing with reforestation or forest fires, the constant decrease of interest on capital all over the world, going hand in hand with an increase in civilization, and a legion of similar considerations.

Biltmore, N. C. *C. A. Schenck.*

* Bulletin No. 5 of the United States Division of Forestry, entitled "What is Forestry?"

The California Orchards.

THE fruit crop of California is again below the average, owing to frosts in some districts and to hot dry winds in others. A few valleys report larger crops than usual, and single orchards are in some cases well laden, though surrounded by others that have no fruit. The following notes are from personal observation and the reports of correspondents:

Almonds are much below the average, but in a few districts show a large crop. Apricots are generally excellent, except in Sacramento, Kern and parts of Ventura counties.

Cherries are below the average, particularly the large, light-colored varieties, such as Royal Ann. Peaches are difficult to report upon, because districts vary so greatly, but the crop is thought to be only an average one. Pears, Plums and Prunes promise a fair crop in a few places, but seem to be short in many orchards. Los Gatos, San Benito and Solano districts report the prune crop as from one-third to one-half of the average season. The pears, also, have fallen badly. In fact, it is too early to determine exactly the prospects for either pears or prunes. Apples seem to be in good condition. Walnuts are up to the average. The grape crop, so far as reported, is better than usual.

In most cases under my own observations, more injury was done by the failure of late rains and by the hot days of early April than by frosts. But in the parts of the state subject to frosts there has been much injury to deciduous fruit-trees from "sour-sap," which, as Professor Woodworth, of the University of California, recently explained, consists in the fermentation of the sap of the plant by apparently the same organisms that cause the souring of milk. Root sour-sap occurs after very wet winters, in badly drained soil, and the smaller roots rot away. Sour-sap in the trunk and branches of trees occurs when late frosts, after warm days, rupture the growing cells, so that decay organisms find entrance. One orchard association has reported the loss of a thousand large trees from this sour-sap.

Taking a general view of the fruit industry of California, as should be occasionally done so as to prevent people from making unprofitable investments, the outlook is not very encouraging except in a few limited directions. Of course, reports of large profits made by persons engaged in fruit growing still continue, but at present they should be believed only after careful judgment. The average orchardist has not made any money to speak of for three seasons past, and some of the leading men in the business have become bankrupt. Some orchards have been cut down and many have been regrafted. This is particularly true of Almonds, which have been grafted over to Prunes.

There is now a general feeling in California that the fruit industry ought not to have much, if any, expansion for several years to come. Perhaps one fruit grower in a hundred will find orchard extension profitable, but nearly all will lessen their area and specialize their products.

The wiser residents regret to see sales of colony lands at high prices to non-residents for orchards which must be planned, planted and cared for by agents or by those who sold the land. California offers many and great inducements to persons who are able to buy land, live on it, and begin work there, supporting themselves by plain, old-fashioned, mixed farming until they have learned how to specialize. And this kind of pioneering, of growing up with the country, appears needful to later contentment.

One colony in this state boasts that it has more than a hundred non-resident investors, most of whom will not see the land they own until it is covered with bearing vines and trees. For five or six years they have paid for the planting and care, hoping to find their orchards and vineyards profitable. But such tracts, managed by syndicates and associations, have never been satisfactory, even from a financial standpoint, while the poor installment-payers are without that homely attachment to trees that one has planted, and to gardens that one has created, which is really the only salvation. Thousands of acres of these alien and hireling orchards are likely to go back to pasture and wheat fields.

Niles, Calif. *Charles H. Shinn.*

Foreign Correspondence.

London Letter.

THE annual exhibition of the Royal Horticultural Society was held this week in the Temple Gardens, and, notwithstanding somewhat unfavorable weather, it was an unqualified success. The exhibits were, on the whole, of superior quality to those of previous years, while the company was greater. Her Royal Highness the Princess of Wales visited the exhibition on the opening day and expressed her delight with it.

Orchids.—The collections sent by Sir Trevor Lawrence, Baron Schroeder, Mr. W. S. Ellis, and by Messrs. Sander & Co., Low & Co., B. S. Williams & Son, Cypher, Lewis & Co , Charlesworth & Co., and Messrs. Linden, of Brussels, were remarkable for their extent and excellence, both as to specimens and variety. The enormous plant of Cœlogyne Dayand, bearing twenty-four racemes of flowers a yard long, was a feature for about the fourth time, proving that good cultivation alone, and not, as was at first suggested, imported vigor was the cause of its flowering so freely. The rare Cypripedium callosum Sanderæ, bearing two flowers, Bulbophyllum barbegirum with two spikes, Hexisia bidentata, a charming Dendrobium-like plant with scarlet flowers, Lælio-Cattleya Digbyana-Mossiæ, a big specimen of that most delightful of Dendrobes, D. Loddigisii (pulchellum), a group of well-flowered specimens of Vanda teres, and, of course, numerous choice varieties of Odontoglossum crispum, were among the most attractive of the plants in Baron Schroeder's group. Sir Trevor Lawrence always sends many Orchids of botanical interest, and in this respect this year was no exception. Passing over the big and perfect specimens of Cattleya, Dendrobium, Cypripedium and Odontoglossum, we may note the pan of Neottia Nidus-avis with its brown flowers, Trichocaulon longibracteatum with white flowers stained with crimson on the front and side lobes of the lip, Dendrobium Auguste-Victoria with tall pseudo-bulbs and spikes in the way of D. stratiotis, D. signatum aureum with flowers of pale sulphur-yellow color, in form like those of D. lituiflorum, Eria ornata with a long hairy scape of large yellow-brown bracts and green flowers with orange lip, Epidendrum Mooreanum, a rather new species in the way of E. virens, with crimson blotches on the lip of the greenish yellow flowers, Lycaste jugosa, Microstylis macrocheila and a grand plant of the tiger-flowered Maxillaria Sanderiana.

Messrs. F. Sander & Co. were, as usual, liberal exhibitors. A large plant of Cattleya Reineckiana, bearing thirteen flowers and buds, was shown; also a new hybrid called Lælio-Cattleya the Queen, Cattleya Rossii, raised from C. intermedia and C. Leopoldii, bearing three spikes and eighteen flowers, which were like those of intermedia, but spotted and tinted as in Leopoldii. Dendrobium Dalhousieanum was represented by large specimens carrying dozens of spikes of its large yellow and crimson flowers, and Ancectochilus Sanderianus, one of the most charming of the genus, Sobralia Veitchii with large blush-white flowers splashed with yellow in the throat, and Stenoglottis longifolia, and a pure white-flowered form of it revealed the charm of this pretty Cape terrestrial Orchid.

Messrs. H. Low & Co. sent some rare Phalænopsis, Cœlogyne asperata, C. pandurata and a beautiful form of Odontoglossum crispum named Queen Victoria, to which a first-class certificate was awarded. It has medium-sized flowers, rose-tinted, with a large crimson-brown blotch on each segment. Messrs. Linden's group consisted almost wholly of Odontoglossum crispum varieties and forms of Cattleya Mossiæ, the latter being superior to any that I have seen. They also sent a gigantic-flowered form of C. Schilleriana, to which a first-class certificate was awarded. The three choicest Orchids, sent by Messrs. Charlesworth, of Bradford, were Sophro-Lælia Marriottiana, raised from S. grandiflora and L. flava, Lælio-Cattleya Lady Wigan, to which a first-class certificate was awarded; it is a hybrid between L. purpurata and C. Mossiæ. The third plant was a beautiful variety of Odontoglossum excellens named R. Ashworth. The most admired Orchid exhibited was a form of Odontoglossum crispum named Starlight. It bore a spike of six flowers nearly four inches across, with broad sepals and petals colored rose-purple and peppered all over with red-brown. It was sent by Mr. Broman White, and was awarded a first-class certificate. Connoisseurs bracketed with this truly lovely plant

a hybrid of unknown parentage, but showing evidences of Lælia purpurata and Cattleya aurea. It bore the cumbrous name of Lælio-Cattleya Lyntesfieldiense. The sepals and petals were rosy mauve, and the broad, wavy lip deep maroon-crimson almost to the base. It obtained a first-class certificate.

Luddemannia Lehmanni, bearing three spikes of bloom; very large specimens of Cypripedium caudatum, C. Chapmanni magnificum (Curtisii × bellatulum), and another hybrid between C. bellatulum and C. concolor were other Orchids of special interest.

The collections of Roses, Caladiums, Carnations, herbaceous plants, Rhododendrons and other hardy flowering shrubs were rich and full of interest. Roses have never been seen finer, and the Caladiums from Messrs. Laing and Veitch were marvels of good culture as well as creditable to the breeders of these plants, which have been greatly improved in the last ten years. Among the Carnations I noted several of excellence—Duchess Consuelo, a yellow in the way of Germania, and raised by Mr. Willans, gardener to the Duke of Marlborough; James O'Brien, a large, full, deep crimson flower, and The Pasha, a yellowish salmon variety, shown by Messrs. Cutbush.

Crimson Rambler Rose is as popular as ever, some well-flowered specimens occurring in several of the big groups. A Tea Rose named Enchantress, with large flowers in the way of A. Ollivier, but paler, is a promising variety which Mr. W. Paul raised about two years ago. Messrs. Sutton's

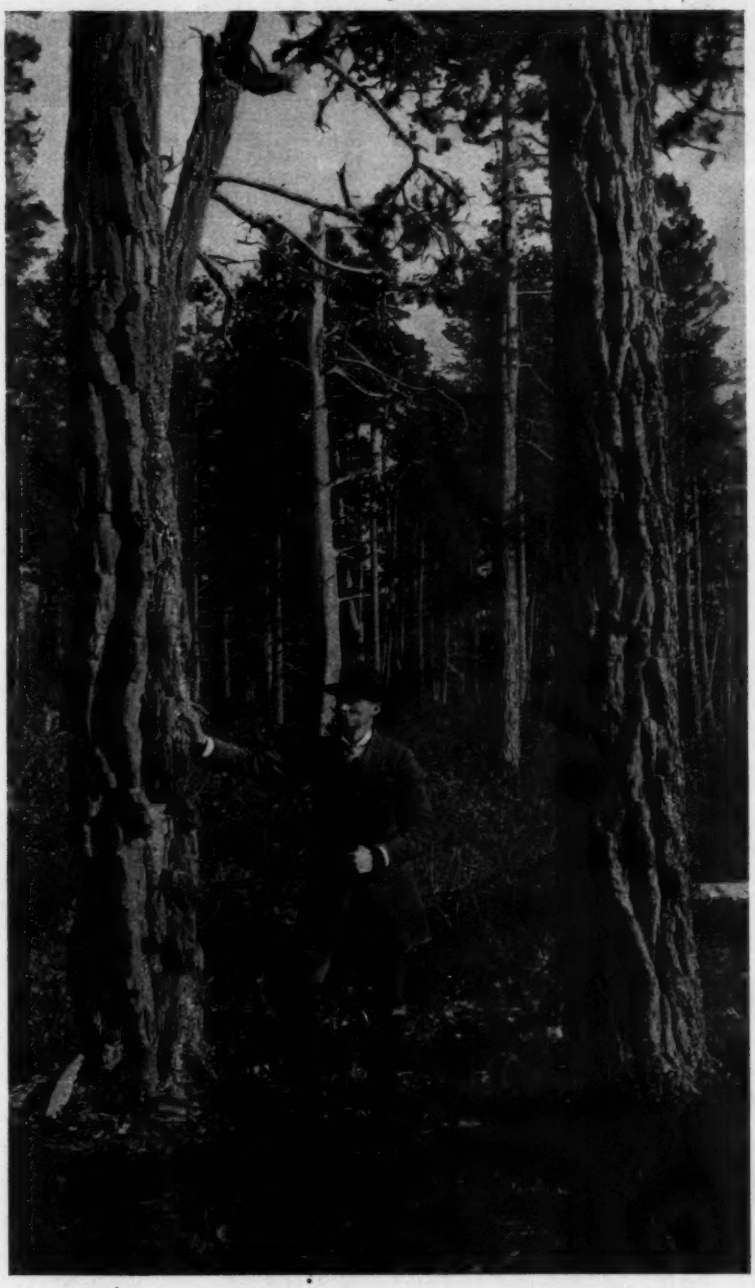

Fig. 30.—Pinus muricata on the coast of California.—See page 232.

Gloxinias, Cannells' Begonias, Cannas, Calceolarias and Gloxinias, Balchin's Boronias, Heaths, Phœnocomas and other hard-wooded plants, May's Ferns, Kelway's Pyrethrums, Iris, Aquilegias, Pæonies, Dobbie's Pansies and single Dahlias, Veitch's Streptocarpus and Phyllocactus, Wallace's Lilies, Iris, Calochortus and Brodiæas, Jackman's hybrid Clematis, and Smith & Co.'s giant specimens of the popular large-flowered sorts, are collections which may be mentioned as having contributed largely to the success of the exhibition.

New Plants.—Messrs. Veitch showed a very large-flowered variety of Hydrangea hortensis, the barren flowers over two inches across and of a rich rose color. Messrs. Sander & Co. showed their new Dracænas and Caladiums, a variegated Canna, Mapania pandanifolia, two Petunias and Davallia hirta. Mr. Bull showed a form of Ficus radicans with silvery variegated leaves; he also showed his new Anemia rotundifolia, with long, narrow, pinnate, arched fronds, and Crinum Moorei variegatum. Monsieur Moser, of Marseilles, sent a new Clematis with large flowers, the petals pale rose, banded with cerise.

The number of new plants exhibited this year was exceptionally small. It is said to be due to the forthcoming Ghent Quinquennial Exhibition next year, at which one of the great features is always new plants, and for which the nurserymen appear to be holding themselves in reserve.

London. *W. Watson.*

Cultural Department.

The Asparagus Rust Again.

THE season of 1896 was the first one in which the genuine rust of the Asparagus, Puccinia asparagi, had been observed in this country, at least in the eastern states, and in quantity to make its presence alarming. During the autumn months the Asparagus fields, instead of being a luxuriant green, turned to a brown, which suggested the ravages of an insect or the work of an untimely frost. Early in autumn the surface of the infested Asparagus stems was more or less covered with patches or pustules of an orange color, due to the myriads of spores that had formed in minute rifts and ruptures of the epidermis. Later on, in the fall, the same spots upon the stems became dark-colored, a brown form of spore having replaced the brighter one. In this condition the story of the outbreak and life history of the fungus closed for 1896.

This microscopic parasite has long been known in Europe, and has three forms, at least, in which it thrives upon the Asparagus. The brown pustules of late autumn, the stage in which the fungus passes the winter, are followed the next season by a form very different from either of the two previously mentioned. This is commonly known as the "cluster cup" stage, and consists, so far as the eye sees, of minute cup-shaped bodies which arise from the infested stem in small groups or clusters, hence the common name for this form of the rust fungi. This cluster cup form was to be expected as the beginning of the attack of the rust for the present year, and it appeared during the past week. On the third of June, samples of the cluster cup fungus were sent to me from the centre of a large area devoted to the cultivation of Asparagus. The cutting of the crop is at its height, and the rust is confined to young plants that are allowed to grow to gain strength for future years. The first rust was found upon the plants that grew in a vineyard that had been in Asparagus some years before. These were vigorous shoots that came from roots that had not been killed out. The clusters of cups are most frequently found upon the main stem and a foot or so above the ground, while not infrequently they appear close to the soil, and even the fine branches at the top of the plant are sometimes rusted.

An examination of young beds set this spring showed that these plants were bearing the fungus cups, and the beds of last year's setting were in like manner infested. The stems in old beds that are being cut from day to day do not stand long enough for the fungus to show itself, but after cutting ceases there is reasonable certainty that these beds will also show the first form of the rust, and be followed by the second and third stages of the fungus before the season closes.

It is too early to know the results that will follow the treatment recommended last autumn, namely, the cutting and burning of the rusted plants. One thing is already certain and that is the great falling off of the yield. From reports received upon this point from various growers, and those in charge of shipments at the centres of Asparagus growing, it is gathered that the yield is not more than half that of the ordinary season. This may be due in small part to cool weather, but there is sufficient ground for attributing it largely to the rust, which was overwhelming in its attack last season. It is also learned that there is no material difference in the yield upon fields where the brush was cut and burned and where it was left standing through the winter. The effect of the burning upon the amount of rust later in the season will be looked for with much interest.

Growers of Asparagus are anxious to know what to do now in view of the fact that the first form of the rust is in sight. All Asparagus that is "growing wild" should be destroyed, as it is a propagating place for the rust. Spraying should be resorted to as soon as cutting is through and shoots begin to form for the season's work of assimilation. The Bordeaux mixture or some other standard fungicide may be applied at intervals of about ten days. The fungus is not in the group that has heretofore yielded promptly to this treatment, but there is hope of doing some good. The value of spraying with fungicides is being tested in the field of Asparagus upon the ground of the Experiment Station, and as soon as possible the results will be published.

New Jersey Experiment Station. *Byron D. Halsted.*

Climbing Plants for the Greenhouse.

EVERY greenhouse provides some corner in which a climber can be displayed to advantage, though in a house of limited area judgment must be exercised in the selection of plants for this purpose. Where abundant space can be allowed for such rampant growers, the Tacsonias and Passifloras are especially beautiful, and quite a moderate temperature is generally sufficient for their needs—that is, the temperature of an intermediate house, say, from fifty-five to sixty degrees. The most satisfactory method of cultivating is to plant out in well-drained beds and train the growth without too much formality along wires attached to the roof.

Passiflora racemosa is one of the most satisfactory of the Passion-flowers, and from its habit of blooming from both young and growing shoots and also from the old hard wood, a well-established plant is seldom without flowers. Cuttings of firm young wood will root at almost any time, but as plants raised in this manner do not always start away freely, P. racemosa is frequently grafted on P. Raddiana or some other free-growing species. In grafting, the stock frequently suckers freely, and this objectionable feature requires watching.

Passiflora vitifolia, sometimes called Tacsonia Buchananii, is also an admirable climber and grows rapidly. After it becomes somewhat root-bound it flowers profusely, the solitary flowers hanging on long pedicels below the foliage. Tacsonia Van Volxemii is another favorite for conservatory decoration, and, while a rapid grower, neither the foliage nor wood is so coarse as that of the P. vitifolia, and it is more graceful. The flowers of this Tacsonia swing on slender stems, usually more than a foot in length. They are rich crimson in color and four to five inches in diameter, and altogether showy and attractive.

Tacsonia Exoniensis is a hybrid variety introduced some twenty years ago and resembles in habit T. Van Volxemii, but the leaves are smoother and the flowers deep pink. T. insignis is another handsome species and is also free in growth. The flowers are large and dark crimson, but cuttings do not root quite as readily as those of the two preceding Tacsonias, and I think T. insignis is less prolific in flowers, at least until the plant becomes slightly starved.

The Butterfly Vine, Stigmaphyllon ciliatum, flourishes under conditions similar to those required for Tacsonia. It flowers freely during the summer months, when planted out-of-doors, from Washington, District of Columbia, southward. It is much smaller in leaf and finer in growth than the Tacsonias, and is therefore adapted for smaller houses. It requires bright sunlight and a light, rich soil.

Thunbergia Harrisii, another old favorite, is suited for commodious quarters. While the individual flowers do not last very long, they are produced in profusion, and their shade of blue is none too common. T. Harrisii stands close pruning, which is fortunate, for mealy bug often attacks the plants, and the annual pruning gives a clean start, and thus saves trouble later in the season. Cuttings two to three joints in length, from rather light wood, will root quickly in rich loam with free watering.

The beds for these strong-growing climbers should be built

of brick or concrete, about three by two feet and eighteen inches deep. The drainage should be thorough and the soil rich and rather coarse—that is, only broken up with a spade in mixing. For a fertilizer I prefer bone-dust in moderate quantity, with a good proportion of barnyard manure.

If a house sufficiently cool is available, Lapageria rosea and L. alba should not be omitted, but unless the necessary conditions of coolness and abundant ventilation can be given these beautiful plants will not thrive, and insect attacks are likely to follow.

Stephanotis floribunda and one or two of the Tecomas are useful, and do not require great heat, but Stephanotis is another favorite of mealy bug, and strong syringing with a good pressure of water is necessary to keep down this pest.

Of the Tecomas, T. jasminoides and T. Smithii can be safely recommended. The first is a strong grower, and does not bloom freely until it has grown to considerable size, while T. Smithii flowers while quite small, and is satisfactory either as a pot-plant or when planted out. Trachelosperma jasminoides is well adapted for growing on a trellis in a pot or tub, and gives an abundant crop of white Jasmine-like flowers. A rather peaty soil is preferable, and a temperature no higher than forty-five to fifty degrees.

For warm-house treatment few, if any, climbers surpass some of the Dipladenias. These can be handled to better advantage in pots than when planted out in a house, and experience has shown that it is not necessary to coddle these plants, as was once the practice.

Holmesburg, Pa. *W. H. Taplin.*

Hardy Rhododendrons.

RHODODENDRONS at Wellesley are exceptionally fine this season, owing to the mildness of the past winter and a favorable spring. The list of varieties once considered tender, and now regarded as hardy, is being gradually extended. New plantations not infrequently lose their first season's setting of buds, consequent upon insufficient root development. Even though all the conditions for successful cultivation are favorable, we should not decide as to hardiness after one, or even two years' testing. There has never been any doubt of the hardiness of hybrids in which the blood of our native R. Catawbiense prevails.

One must become interested enough in these plants to study somewhat the history of hybrid Rhododendrons in order to give them intelligent cultivation. We depend almost entirely upon European raisers, mostly English nurserymen, for our supply, and the consequence is many beautiful varieties, hardy enough in England, and recommended in good faith, have been imported, and proved altogether unsuitable to our climate. We find many of them injured beyond recovery after the first winter, while some linger on for a season or two. Loss of vitality, resulting from an ocean voyage and change of soil and climate must, of course, be allowed for. R. Ponticum is quite hardy in England, and is there considered the best parent for hybridizing and also as stock for grafting. While the good qualities of R. Catawbiense are recognized, and a plentiful infusion exists among standard sorts, it is, nevertheless, difficult to tell to what extent this is so. R. arboreum, the Himalayan species, and the tenderest of this type, is also used as a parent. It is from this species that we get the finely tinted rose, crimson and ruby-red shades so much desired. But in proportion as R. arboreum and R. Ponticum enter into the parentage of a hybrid, the less reliable is it for American cultivators, especially in this latitude.

When it is not possible to know the history of the varieties we wish to grow, we must trust to the recommendations of raisers and dealers who use our native species as a parent or stock. The Messrs. Waterer, of England, have made a specialty for many years of raising varieties for the American trade, and nearly all the finest varieties in our gardens have come from them. Many of the so-called tender varieties are conspicuous for the size of their individual flowers, the form and size of the truss, distinct colors and splendid markings. To establish, to acclimatize these has been slow work. The material at first was not the best. Large old plants which have been moved in and out of cover for a number of years, and which are likely to be out of health, are not the most favorable subjects to experiment with. As a rule, they take hold slowly, but the expected loss from winter cold has not proved serious. It does not appear so much a question of constitutional weakness as to get the flower-buds thoroughly matured and to find proper protection for them. There is generally a good setting of buds, but without flowers the most ardent enthusiast is apt to lose courage. The plants screened from the irritating effects of bright sunshine during winter suffer least, and on this suggestion most experiments have been carried out with satisfactory results, and so every year varieties are taken from the doubtful list and counted as hardy. Frequent examinations throughout the winter show that during the severest weather the buds kept sound, and not until the sharp changes from low night temperature to bright, often warm, days in March and early April does the real injury occur. Plants sheltered from the north and exposed to the full sun suffer most.

A list of choice varieties not generally found to be hardy in this neighborhood, and which have been out several winters and are now in fine condition, includes Duchess of Sutherland, rosy lilac, deeper margin; Princess Mary of Cambridge, blush, edged with carmine; F. D. Godman, crimson, large dark standard petal, fine foliage; James Mackintosh, rosy scarlet, fine truss; Marshall Brooks, rich scarlet, with bronze spots, distinct and beautiful; John Walter, rich crimson, fine form, very effective; Charles Thorold, purple, bronze standard, fine habit and good foliage; Mrs. C. Thorold, bright pink, yellow centre, distinct and beautiful; Mrs. Shuttleworth, scarlet, lighter centre, spotted, very attractive; Lady Rolle, white, spotted; Mrs. Heywood, bright rose, free; Countess of Normanton, blush-white, dark spotted, showy; Mrs. J. P. Lade, French gray, deeper centre, fine truss.

Among a large number of varieties reliable as to hardiness the following are noteworthy for fine colors, large flowers and handsome trusses: Lady Armstrong, rosy spotted, early; Caractacus, deep crimson, one of the best for all purposes; Mrs. John Clutton, splendid white, standard petal spotted yellow; Mrs. C. S. Sargent, rosy, marked with yellow, handsome foliage; E. S. Rand, rich scarlet; Selton, purple, large flowers, late; Lady Crossley, deep rose, distinct, early; Queen, blush, nicely marked, with yellow spots, requires shade; Lady Grey Egerton, silvery rose, large truss, handsome; Mr. H. H. Hunnewell, deep rose, bold truss; Charles Bagley, cherry red; Mrs. Henry S. Hunnewell, very fine white, will prove our best white; King of the Purples, striking color; Album elegans, blush, changing to white; Album grandiflorum, white; Delicatissimum, valuable on account of being late and associated with a mass of Kalmia latifolia, comes into bloom at the same time; Ralph Sanders, rich purplish crimson; F. L. Ames, probably the most striking of any of the rosy-flowered varieties, the flowers very large, truss well built, color blush, with deeper edge. Mum would be my choice among nearly two hundred varieties. It is white, with creamy spots on the standard petal, the flowers are extra large and the truss superbly formed, but it is doubtfully hardy. Plants which have been out for two years are blooming sparsely this spring, and it is hoped when better established it may prove entirely hardy.

Wellesley, Mass. *T. D. Hatfield.*

The Cultivation of Dionæa.

IT is seldom this wonderful little plant is seen in a good state of cultivation any length of time after removal from its native haunts. Its cultivation in a greenhouse is usually attended with more or less difficulty, owing to unsuitable conditions, such as too much dry air, shade or unfriendly soil. It delights in full sunshine with a very humid atmosphere. When the plants can be secured and transplanted with considerable of the soil in which they grow attached to the bulb-like root-stock they are quite easily dealt with, and may be kept in a healthy growing state for years. I find a round, hanging earthenware receptacle most useful to grow them in; the bottom is carefully drained, first with large pieces of broken pots, then smaller pieces, and the upper layer is quite fine. Some chopped fibrous peat is placed above this, when the plants are built in, with live sphagnum moss used to fill the spaces between the clumps. Arranged in this way, it is hardly possible to give them too much water, and they revel in abundant supplies. If kept in the sun the leaves take on a reddish tinge, but when grown in the shade they are always green. Flowers will develop about this time, but they should be nipped off as they make their appearance, for they are apt to weaken the plant.

The Dionæa has been grown successfully in a dwelling-house by quite a different method. The plants were in a wide shallow dish without any drainage, and simply placed, not too firmly, in loose live sphagnum moss, with a glass covering. Water was given every other day by filling the space above the plants until the dish was filled, and then it was poured off. In this way the potting material never became sour. From the luxuriant condition in which these plants remained for years, I am inclined to think this to have been a close imitation of the conditions under which they thrive in a wild state. Some years ago, owing to Professor Asa Gray's endeavor to

have the Government purchase a strip of land on which this plant grows, there existed a widespread idea that it was gradually becoming extinct. There seems to be little likelihood of this calamity, however, as Dionæa is found abundantly in some places all the way from Wilmington to Fayetteville, in North Carolina. Its permanency is all the more assured seeing that the plants thrive on soil which is of little use for agricultural purposes.

Botanic Garden, Washington, D. C. *G. W. Oliver.*

June Irises.

EARLY in June, just as the bloom of hybrid German Irises is waning, we may expect the flowers of another group scarcely less interesting and with colors as bright as those of any of the family. These Spanish Irises are bulbous and natives of south-western Europe and northern Africa. While there are several species and numerous hybrids in the group varying somewhat in hardiness, those which are classed by the Dutch bulb growers as Spanish Irises are all perfectly hardy in this latitude with no protection. They are yellow, blue, blue-purple and white, selfs and in combination, and sometimes with an admixture of brown. The Spanish Irises have narrow leaves which spear in early winter, and they flower at about eighteen inches in height. There are three forms in general cultivation; those with narrow falls spreading laterally are the most common; the Portuguese yellow form, I. Lusitanica, has relatively broad falls which rise slantingly, and there is a vigorous old form known as The Thunderbolt, with bronzy flowers, which is larger in all its parts. As most of these Irises may be had at a low price they should be planted in large groups, when they are most effective, and in the open, where they will receive the full benefit of spring rains, or if these are lacking they require generous waterings. A full supply of water in the spring is necessary to their successful growth and flowering, even if they have been well matured the previous summer. They have flowered particularly well this wet season, and some neglected bulbs which seldom flower, owing to too dry a location, have been brought forward by the abundant recent rains.

Some of the bulbous Irises are scarce even at a high price, and too many dealers fill orders for these with Spanish Irises, always at high prices. Having been at the losing end of such transactions a number of times, I offer the suggestion that consignments of bulbs should be compared with one's stock of bulbs of Spanish Irises and those of the same form under different names should be regarded with some reserve.

Elizabeth, N. J. *J. N. Gerard.*

Asparagus Sprengeri.—This can no longer be considered a new plant, for it is well distributed over the continent now, and those who were fortunate enough to secure plants early are beginning to enjoy the results of their venture, for the purchase of new plants is speculation of the purest kind. Not only do the plants sometimes vary from the published descriptions, but their behavior is sometimes extremely local, a fault the vender is not to be held responsible for. I am told that in Italy, where Mr. Sprenger had the original plants growing, the stems were upward of eight feet high and studded over with brilliant scarlet seeds, and the visitor who was my informant was most enthusiastic over the plant. Asparagus Sprengerii promises to be even more durable when cut than either of the other kinds now so commonly grown, and though it will never supplant A. plumosus and A. tenuissimus in public favor, it will make a sure place for itself. Our largest plant is now in a twelve-inch pot, and cultivators will find that unlimited pot-room is essential for its success, or it must be planted out. The tubers are so numerous that they soon push the soil up out of the pot. The new potting material, Jaddoo fibre, is said to be best suited for such plants. It affords free root-room and enables the tubers to expand in the pots. The flowers of A. Sprengerii are quite pretty, being pure white on short racemes, and the anthers are of a bright orange color. It is decidedly ornamental when in bloom, and one can easily understand the effect of the red berries when ripe. The plant must be propagated from seeds; cuttings will not root, as with A. tenuissimus. Seeds must be freely obtainable, to judge from the rapidity of its distribution recently.

South Lancaster, Mass. *E. O. Orpet.*

Ranunculus Ficaria.—This is an interesting Buttercup which appears to have made its way to America now for the first time. It was found growing as a weed in a pot with some imported greenhouse plants about two years ago, and is now well established in a small way in one or two Buffalo gardens. It much resembles the Caltha and blossoms even earlier, so that it will be valuable in the list of April bloomers. The leaves are less than half the size of those of the Caltha and run from round heart-shape into broadly halberd-shape or sagittate; they are smooth, growing in a cluster that entirely conceals the short stems, from which the numerous scape-like golden-yellow flowers rise. The peculiarity which distinguishes it from allied plants is the production of numerous elongated, whitish tubers of the size of small peas. These are readily separated some distance from the parent plant, and the plants that spring from them also bear tubers before they are large enough to blossom. The plant disappears after maturing its tubers, not waiting to bear seed, but is perennial and reappears the next season. This Ranunculus was known to Linnæus, who appears to have found it under the common name of Ficaria, the fig plant, and incorporated the name into its scientific title, as he so often did in other instances.

Buffalo, N. Y. *John Chamberlin.*

Correspondence.

A Garden of Roses.

To the Editor of Garden and Forest:

Sir,—In reference to Mr. Gerard's article on garden Roses, on page 217 of Garden and Forest, I must put in a plea for the so-called Hybrid Perpetuals, because of their splendid decorative effects in the June garden. It is true that their blooming season is soon past, but that is equally true of all shrubs and flowering trees, and of most herbaceous plants as well. We would hardly miss any other flowers so much as these. Their flowers are so large and showy, and so freely produced, and the plants grow to so much larger size than the Teas that I think them preëminently desirable in any garden where there is space enough to admit of their full development. Their foliage is beautiful, and the new growth has fine coloring, so that with their graceful habit of growth when allowed to develop naturally they are attractive throughout the summer after the flowering season is past. Besides, they do give flowers occasionally in late summer and in the fall. As I write there is before me a garden of Roses in their prime, consisting entirely of June Roses and Hybrid Perpetuals. Here Ulrich Brunner forms a large bush with a hundred perfect roses of a rich, dark, velvety red. R. multiflora has taken possession of a Mulberry-tree, over which it rambles and which it has clothed with a beautiful garment of shining, healthy foliage and masses of pure white clustered flowers. In this lovely wilderness Paul Neyron is trained to a stake twelve feet high, and from this elevation its immense roses overlook all their neighbors. Abel Carrière has a little trellis to support it, not too stiffly, and is covered with its beautiful crimson blooms. Giant of Battles was one of the first to open here, long before a Tea Rose had shown its color. It is ten feet in height, the main stem tied to a stake from which many wand-like branches depend, blooming in beautiful profusion. Old-fashioned double white Roses, such as Microphylla, Coquette des Alpes and Madame Plantier blend with the deep red flowers I have named, and the queen of them all is Madame Alfred Carrière, which needs an arbor to itself on which to display the flushed blossoms with their exquisite fragrance.

In this old garden most of the Roses are old, and there are many Hundred-leaved Roses and Rose of Provence, Burnet, Damask, Moss and Cinnamon Roses in waste places and rock-brakes, growing as they will. The well-ordered beds of Teas, beautiful as they are, seem small and tame by comparison. Hybrid Perpetuals increase in beauty every year, and this is seldom true of the Teas, which must be often replanted. But almost every type of Rose is beautiful and desirable, and the Rose lover is likely to find room in his heart and in his garden for all.

The Lord Penzance hybrid Sweetbriers have proved themselves good growers, and are hardy and satisfactory here. The flowers are usually larger and of finer coloring than those of the parent Sweetbrier, while the foliage of all is pleasantly fragrant. The old Sweetbrier is a delightful plant for the wild garden. Often it has a half-weeping habit. There is some difference in the color of its flowers, which, in a wild state, range from nearly white to a clear pink. The finest Rose for color which has ever opened at Rose Brake is a Copper Austrian Brier now just out of bloom. It is curious to find a Rose with petals of scarlet velvet, almost the hue of a vivid scarlet Geranium. The blossoms seem on fire with their own beauty. This color is altogether unique among Roses. The foliage is very fragrant, something like that of the Sweetbrier, but more spicy. Our specimen is planted where it can scramble at will over a ledge of rocks, in company with such Roses

as Rosa setigera and Harrison's Yellow, the yellow Austrian Brier, the old Persian Yellow and others adapted for such a position, where Teas and even Hybrid Perpetuals would be out of place.

Shepherdstown, W. Va. *Danske Dandridge.*

Edible Wild Plants.

To the Editor of GARDEN AND FOREST:

Sir,—This is the season of "greens" and of more or less speculation on the edibility of wild plants. Looking over the list, and omitting the fruits of native plants as well as the bark of the Birch and the Sassafras, the young growth of the Beech-nut and one or two species of Allium, all of which are eaten raw, if at all, the number left for cooking entire is remarkably small.

Besides, there is no little misconception of the wholesomeness of many well-known plants. A writer on wild flowers has published a volume in which the reader is warned against the poisonous qualities of the Trillium, and there are many less learned notions equally as erroneous, so that the seeker after herb-food is unnecessarily timid. There is nothing poisonous about the Trillium, as I can testify from personal use of it for greens, particularly T. erectum and T. erythrocarpum, both of which are esteemed by those who have eaten them. T. grandiflorum is, no doubt, quite as wholesome, but it did not happen to grow within the limit of my excursions for native plants in boyhood days.

Early "greens" gathered in the lowlands include the Cowslip, a common name for the Marsh Marigold, Caltha palustris, but, like most edible plants, it becomes tough and bitter when in full blossom, and it is therefore soon worthless. About the cities the Dandelion is the great dependence for greens, and no amount of attack with knives in cutting off the crown of the plant will kill it—as in case of the Burdock and many other tap-rooted plants—for the Dandelion root is too much of a root-stock not to sprout again.

Many plants of the Mustard family, which are related closely to the Mustard itself and the Cabbage, are good for greens. Turnip and Cabbage stumps are sometimes planted in spring for this purpose. Of the Borage family, the Comfrey makes good greens when gathered young. The common Adder's-tongue, Erythronium Americanum, is sometimes used, and one or two species of Nettle, gathered with gloves, come into the list. Milkweed, treated much after the fashion of Asparagus, is esteemed where it grows in plenty.

Of weeds in cultivated grounds the narrow-leaved Dock, Rumex crispus, is used, but its neighbor, the Yellow Dock, R. obtusifolius, though much resembling it, is rejected. The common "Pusley," Portulaca oleracea, would also come into the list but for the fact that its stems, even after they are cooked, suggest angle-worms too vividly. There is a species of Amaranth common as a rampant weed in gardens where it obtains a foothold, sometimes known as Red-root, Amaranthus retroflexus, that is closely enough allied to the Beet and to Spinach to approach their high standard for greens. It must be used young, before the root becomes woody. The tall Pigweed, or Lamb's-quarters, Chenopodium album, is eaten, but its mealiness is not always relished.

Potato tops may be used in connection with other plants, but, as a rule, the Solanum family is too close to the line of poisonous plants to be eaten in the wild state. There is an innocent plant which, where it is plentiful, furnishes all the requisite qualities for greens. This is Hydrophyllum Virginicum, sometimes known as Boston Cabbage. It grows rampantly and usually forms a mass of broadly pinnate leaves. Coming up early, it will reappear after being picked off, and it does not become woody or bitter for a long time. As it takes full possession of the ground when given the opportunity, and is in no sense a weed, it seems that it might be introduced into semi-cultivation with profit, choosing a moist and partly shady spot.

Buffalo, N. Y. *John Chamberlin.*

The Nomenclature of Abies.

To the Editor of GARDEN AND FOREST:

Sir,—Professor Greene (GARDEN AND FOREST, vol. x., p. 188) thinks that I overlooked some important considerations in my discussion of the nomenclature of the White Spruce. As a matter of fact, these considerations had presented themselves to my mind, but not attributing any very great importance to them I refrained from bringing them into the discussion. A binomial, or species, is published, according to the Rochester code, either by citing one or more binomials, with the name of the author, publication, date, etc., as synonyms, or by giving a proper diagnosis in some scientific or other publication. In 1739 Gronovius published a flora of Virginia, in which he described an Abies foliis solitaris . . . . membranaceis. So far as I am aware, all subsequent authors have considered that Gronovius had in view and described the Hemlock. In 1760 Miller described an Abies foliis piceæ . . . . laxis (*Icones*, i., t. 1); there is no question but that Miller described, as he intended to, one of the Spruces other than the Hemlock. In the *Species Plantarum*, in 1763, Linnæus published a Pinus Canadensis, with the diagnosis P. foliis . . . . submembranaceis, and quoting as first synonym the Gronovian description, Linnæus thinking (though erroneously) that Miller's species was the same, cited the latter's description as a second synonym. Professor Greene suggests that the Linnæan and Gronovian descriptions, which, at any rate, are synonymous, may not mean anything other than the White Spruce, but it is not likely that authors have since their time been so uniformly mistaken in interpreting their meaning. A reference to the Gronovian and Linnæan herbaria may throw some light upon this question, however. Miller in 1768 described an Abies Canadensis, using the Linnæan diagnosis, and quoting his own earlier description. Three things, then, are evident: that Gronovius and Linnæus had in view and described the Hemlock; that Linnæus erroneously thought that Miller's plant was the same as the Gronovian, and therefore that two species entered into the make-up of his Pinus Canadensis, which was founded primarily upon the Gronovian description—the Hemlock; that Miller followed Linnæus in thinking that his plant and the Gronovian were one and the same, but differed from Linnæus in having in view one of the Spruces instead of the Hemlock. Now, regardless of the fact that Linnæus had the Hemlock in view for his Pinus Canadensis, and that Miller had in view one of the Spruces for his Abies Canadensis, the two names must be considered according to the Rochester code as synonymous, since the diagnosis and synonymy in both are the same.

Detroit, Mich. *O. A. Farwell.*

Recent Publications.

The Plant World. Its Romances and Realities. Compiled and edited by Frank Vincent, M.A. New York: D. Appleton & Co.

This is one of the series of books which has been prepared under the supervision of W. T. Harris, United States Commissioner of Education, to furnish systematic home reading on natural history and other subjects. The books are prepared to carry out the University Extension idea and furnish opportunities for self-cultivation after school days are over, and this one, devoted to botanical subjects, can be used as a school reader. Of course, there cannot be much systematic science included in the fifty disconnected extracts found in this little volume, but they are all on interesting subjects, they are usually prepared by competent hands, and they certainly have the charm of variety. We have no reason to expect that the study of botany or any other science will receive any essential impulse from efforts of this sort. The real beginning of the study of nature comes from direct observation of natural objects. Nevertheless, books like this present in an interesting way many facts which ought to be known to persons of ordinary cultivation. It is a good thing for any young person to know something about the distribution of Ferns, the uses of the Cocoanut-tree, the Bread-fruit-tree and the Bamboo, and to get some idea of the botanic garden at Paradenza and the Cinnamon gardens of Ceylon. These are some of the topics treated in this collection, while among the selections which seem to have been arranged by chance are sprinkled short poems by Shelley, Longfellow, Whittier, Thomson and others. An editor thoroughly conversant with the literature of botany might have made a hundred books of this size, each one as good or better than this, and we should have liked this better if our Sequoia did not appear in it under the name of Wellingtonia. The illustrations are suggestive and helpful, and the frontispiece shows an avenue of Royal Palms in Rio Janeiro which in a striking way sets forth the value of these remarkable trees for what may be termed architectural planting.

Notes.

At the beginning of a useful bulletin on spray-pumps and spraying, just issued by the New York Experiment Station, is the following important notice: Do not spray trees and plants when in bloom. It is in no instance necessary or desirable. Not only is this practice liable to injure the delicate parts of the flower, but, what is even more important, it poisons the bees and other insects that are our friends. It would be impossible to grow some of our fruits in commercial quantities without the aid of insects in fertilizing the blossoms.

One of the latest bulletins of the Cornell Experiment Station has been prepared by C. E. Hunn and Professor Bailey on Strawberries under Glass. After quoting a note from this journal to the effect that pots of Strawberry plants in fruit were among the specialties for sale on Broadway at Easter, the writers of the bulletin add that nothing in their experience has ever aroused so much enthusiasm from plant lovers as forced strawberries, and that it is difficult to conceive of anything better suited to table decoration than a clean pot with a thrifty, well-formed Strawberry plant bearing from six to eight full ripe berries and a few blossoms.

Like many other flowering plants, Hemerocallis flava has been unusually handsome this year. The Pæonies, Oriental Poppies, German Irises and other tall plants with large flowers which bloom about the first of June have never been more showy. By the way, *The Gardeners' Chronicle* of June 5th speaks of a hybrid between Hemerocallis flava and H. Middendorfii, which has appeared in the garden of our correspondent, Dr. Christ, of Basle. The resemblance of the hybrid to the latter plant is shown in its shorter flower-stalk and in the color of the flower, while in its inflorescence and the length of the tube it more closely resembles H. flava.

By long cultivation and crossing the Mock Oranges have assumed a great variety of form. Some of them belonging to the group of which Philadelphus coronarius is the best known, are more beautiful than the type, with much larger flowers and an odor which is not so oppressively sweet. These have all passed their bloom in this latitude, and P. Zeyheri is just coming into flower. It is an old shrub, quite distinct from the rest of the genus, and was distributed in America many years ago by the Messrs. Parsons, of Flushing, Long Island. It has smaller and more scattered leaves, arching branches six or eight feet high, and flowers with narrow pointed petals, which are star-shaped when looked at directly in front, although their general outlines are somewhat like those of a bell. It is altogether a pleasing addition to the shrubbery, and could hardly be spared even in this season of abundant flowers.

Clematis crispa, which is a native of the river-bottoms and swamps of our southern states, is already opening its fragrant lilac-purple cylindrical flowers, and it will continue to produce them until they are killed by heavy frosts in November. These flowers are not as showy as those of C. coccinea, which are longer, vase-shaped and bright pink, deepening toward scarlet. In spite of the fact that it is a native of Texas, C. coccinea is quite hardy in New England. Both of these plants have a long period of bloom and both bloom very late in autumn, in spite of their southern origin. Last year we noticed two or three rods of fence covered with these vines mingled together, and the effect was very pleasing. C. coccinea has rather sparse foliage, but this defect was remedied by the abundant leaves of C. crispa. A screen covered with these two vines would make an interesting display of foliage and flowers every day for four or five consecutive months.

Mr. A. H. Kirkland, who has been assisting Dr. Fernald, of the Gipsy Moth Committee, has prepared a paper on the habits and food of the American toad, which has just been published as a bulletin by the Hatch Experiment Station, at Amherst, Massachusetts. After an introduction, in which the ancient ideas as to the venomous qualities of this animal are set forth in a very readable manner, Mr. Kirkland gives statistics which show that only eleven per cent. of the toad's food is composed of insects and spiders which are beneficial or indirectly helpful to man, while eighty per cent. of its food consists of insects and other animals directly injurious to cultivated crops or in other ways obnoxious to man. This shows a record which will compare favorably with that of any of our insectivorous birds, and it is suggested that the boys, who are its most continuous persecutors, should be instructed as to its habits and that laws should be enacted to arrest its wanton destruction.

Receipts of apples are becoming light, and last week was the first of the season in which none have been shipped abroad from this port. Northern Spies, from this state, are the choicest apples now seen in the local markets, with Ben Davis, Roxbury and Golden Russets. Pears are already included in the new-crop fruits now in season, and the first Le Contes have arrived from Florida. Botan and Chickasaw plums are also coming from the same state, and the first Alexander peaches arrived from California last week, with the same variety from the southern Atlantic states. Cherries are plentiful from near-by points, and those from California, larger and of preferable quality, have been exceptionally cheap, owing to dull business during the rainy weather of early June. Strawberries of all grades may be had from Maryland, Delaware, New Jersey, Staten Island and the Hudson River section in this state. Gandy's Prize is one of the best sorts. No more handsome berries than those now coming from Hilton, New Jersey, have ever been seen here. Besides other field and garden fruits from the southern states, there are still some Valencia oranges from California, with the first cherry plums and apricots. Twenty-six car-loads of California fruit were sold here last week, mostly cherries and apricots.

Mr. W. R. Dodson, the Botanist of the Louisiana Experiment Station, has been examining the tubercles on the roots of leguminous plants by means of which nitrogen is taken from the air and used as a food material for the plants. The experiment seems to indicate that each plant, or at most each genus of plants, will support only one kind of parasitic organism capable of developing root tubercles. For instance, a particular organism must be present in the soil if tubercles are formed on Alfalfa, and any quantity of Cow Peas or other leguminous plants will not furnish the proper form of life. The Cow Pea likewise has its peculiar parasite, and dozens of leguminous plants may be grown side by side and each develop its own specific tubercle. Nevertheless, several imported species have been grown and formed tubercles, although the plants were not found in this country and have never been grown in the soil, which seems to indicate that the organism must have been in the soil before the seeds were planted, as there could have been no inoculation from soil in which the plant had been previously grown. If this is true, the organisms are not dependent on any particular plant for their existence, although the plant may be dependent upon them for its fullest development. Their absence from some soils and presence in others cannot, therefore, be explained satisfactorily. While the tubercles have peculiarities of shape or appearance they do not present characteristics that enable one to distinguish them under the microscope, although there are probably as many varieties as there are species of leguminous plants. The fact is that much is to be learned on this important subject before farmers can inoculate their soils with the assurance of success with any given crop.

An interesting bulletin in popular form has just been issued by the Geneva Experiment Station of this state in relation to Gooseberries. There are two native American species, Ribes Cynosbati, with prickly fruit, and R. occycanthoides, with smooth fruit. The European Gooseberries, R. grossularia, have been cultivated for generations, and, at least, a great number of varieties of this species are being tested at Geneva. These bear large and beautiful fruit, but the plants are so liable to mildew in this country that unless this can be checked they are of little value. Many of them bear fruit an inch and a half long and an inch or more in diameter, while the fruit of the native varieties is smaller and less varied in color. In quality the best American sorts are superior to the foreign kinds, since they have thinner skin and a more delicate flavor, and in spite of the smallness of the fruit they are more productive than the foreign varieties. Downing, Houghton, Crystal and Red Jacket are among the best of the American sorts. The well-known mildew is a fungus which grows on the surface of the green shoots, the foliage and the fruit, at first frost-like, and covering later the affected parts with brown or black felt-like patches. To check this fungus the plant should be set in well-drained soil in high locations where the free circulation of air is not hindered by tight fences or wind-breaks of any kind, so that rapid evaporation of dew will be secured. Shallow cultivation, keeping the soil light and free from weeds, and pruning to admit air currents are also essential. The Bordeaux mixture is liable to spot the fruit, and it is, therefore, better to spray the bushes as soon as the buds begin to open with potassium sulphide in a solution of one pound of sulphide to thirty-two gallons of water. If one is prepared to make a determined fight against the mildew in this way he can successfully raise European sorts like Industry, Crown Bob and Wellington Glory, and secure fruit both early and late of striking size and color.